

What is claimed is:

1           1. A toilet flange assembly for connecting a toilet to a floor of a building and  
2 to a plastic waste pipe disposed under said floor, said flange assembly comprising:  
3           a plastic flange member including a first cylindrical pipe section having upper  
4 and lower end portions, said upper end portion terminating in an annular flange for  
5 connection with said toilet and said floor, said lower end portion having a first sealing  
6 zone,  
7           a plastic adapter member for connecting said flange member to said waste  
8 pipe, said adapter member including a second cylindrical pipe section having upper  
9 and lower end portions, said lower end portion of said second pipe section having a  
10 second sealing zone connected via an elbow to a pipe socket connector member that  
11 can be attached by a cemented joint to said plastic waste pipe,  
12           a telescopic connection between said lower end portion of said first pipe  
13 section and said lower end portion of said second pipe section whereby the axial and  
14 angular positions of said flange member can be adjusted relative to said adapter  
15 member, and  
16           fluid sealing means mounted on one of said pipe sections in the sealing zone  
17 thereof for movement therewith and disposed in sliding engagement with said sealing  
18 zone of the other of said pipe sections for maintaining a fluid seal therebetween,  
19           whereby said toilet flange assembly is installed by first connecting said pipe  
20 socket connector member to said waste pipe by a cemented joint and then adjusting  
21 the flange member to desired angular and axial positions for fastening the flange  
22 member to the floor and whereby the angular and axial positions of said flange  
23 member may be changed after installation to accommodate a different floor level or  
24 toilet orientation without need for changing said cemented joint.

1           2. A toilet flange assembly as defined in claim 1, wherein said assembly  
2 comprises external screw threads on the upper end of said first pipe section and  
3 internal screw threads on the upper end of said second pipe section for mating  
4 engagement with said external screw threads.

1           3. A toilet flange assembly as defined in Claim 1, wherein said fluid sealing  
2 means comprises:

3           an annular groove in said lower end of said one of said pipe sections, and  
4           an annular seal ring disposed in said groove in sealing engagement with both  
5 of said pipe sections.

1           4. A toilet flange assembly as defined in claim 3, wherein said one of said  
2 pipe sections is said first pipe section.

1           5. A toilet flange assembly as defined in claim 4, wherein said annular seal  
2 ring is an O-ring.

1           6. A toilet flange assembly for connecting a toilet to the floor of a building  
2 and to a plastic waste pipe disposed under the floor, said flange assembly comprising:  
3           a plastic flange member including a first cylindrical pipe section having upper  
4 and lower ends, said upper end terminating in an annular flange for connection with  
5 said toilet and said floor,

6           a plastic adapter member including a second cylindrical pipe section having  
7 upper and lower ends, said lower end of said second pipe section having an internal  
8 sealing zone of uniform inside diameter, said lower end of said second pipe section  
9 having an external connector surface of uniform diameter for mating connection by a  
10 cemented joint with a connector socket of an elbow, said external connector surface  
11 surrounding at least part of said sealing zone,

12           a telescopic connection between said lower end of said first pipe section and  
13 said sealing zone of said second pipe section whereby the axial and angular positions  
14 of said flange member can be adjusted relative to said adapter member,

15           fluid sealing means operatively connected between said sealing zone and said  
16 first pipe section,

17           whereby said toilet flange assembly may be installed by first connecting said  
18 adapter member to said waste pipe by a cemented joint and then adjusting the flange  
19 member to desired angular and axial positions for fastening it to the floor and  
20 whereby the angular and axial positions of said flange member may be changed after

21 installation to accommodate a different floor level or toilet orientation without need  
22 for changing said cemented joint.

1           7. A toilet flange assembly as defined in claim 6, wherein said assembly  
2 comprises:  
3           external screw threads on the upper end of said first pipe section and internal  
4 screw threads on the upper end of said second pipe section for mating engagement  
5 with said external screw threads.

1           8. A toilet flange assembly as defined in claim 6, wherein said fluid sealing  
2 means comprises:  
3           an annular groove in said lower end of said one of said pipe sections, and  
4           an annular seal ring disposed in said groove in sealing engagement with both  
5 of said pipe sections.

1           9. A toilet flange assembly as defined in claim 8 wherein said one of said pipe  
2 sections is said first pipe section.

1           10. A toilet flange assembly as defined in claim 9 wherein said annular seal  
2 ring is an O-ring.

1           11. A toilet flange assembly for connecting a toilet to a waste pipe disposed  
2 under a floor, said flange assembly comprising:  
3           a flange member including a first pipe section having upper and lower end  
4 portions, said upper end portion having an annular flange and said lower end portion  
5 having a first sealing zone,  
6           an adapter member that connects to said flange member, said adapter member  
7 including a second pipe section having upper and lower end portions, said lower end  
8 portion of said second pipe section having a second sealing zone and a connector  
9 member,

10           a telescopic connection between said flange member and said adapter member  
11   whereby the axial and angular positions of said flange member can be adjusted  
12   relative to said adapter member, and  
13           a fluid seal between said first and second sealing zones.

1           12. A toilet flange assembly as defined in claim 11, wherein said flange  
2   member is threaded into said adapter member.

1           13. A toilet flange assembly as defined in claim 11, wherein said first pipe  
2   section has a wall thickness that is greater at said upper end portion proximate said  
3   annular flange than at said lower end portion.

1           14. A toilet flange assembly as defined in claim 13, wherein said upper end  
2   portion of said first pipe section has a set of external threads.

1           15. A toilet flange assembly as defined in claim 11, wherein said first and  
2   second pipe sections each have a greater outside diameter at said upper end portion  
3   than at said lower end portion.

1           16. A toilet flange assembly as defined in claim 11, wherein said connector  
2   member of said second pipe section comprising a pipe socket connector member that  
3   can be cemented onto an end of the waste pipe.

1           17. A toilet flange assembly as defined in claim 16, wherein said second pipe  
2   section includes an interior annular shoulder.

1           18. A toilet flange assembly as defined in claim 11, wherein said second pipe  
2   section includes an elbow connecting said second sealing zone with said connector  
3   member.

1           19. A toilet flange assembly as defined in claim 11, wherein said second pipe  
2   section comprises a straight section of pipe having no bends.

- 1           20. A toilet flange assembly as defined in claim 11, wherein said fluid seal
- 2   comprises an O-ring in contact with both said first and second pipe sections.